

UNITED STATES PATENT APPLICATION

OF

Hye Yong PARK,

Dong Ha CHOI,

Sung Rak GONG,

and

Dong In KIM

FOR

CABINET FOR HOME APPLIANCE

[0001] This application claims the benefit of Korean Application No. 10-2002-0078345 filed on December 10, 2002, which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

5 Field of the Invention

[0002] The present invention relates to a cabinet for a home appliance such as a washing machine, and more particularly, to a sectioned lid such as that for use on a top-loading washing machine, in which at least one reinforcement rib extends from an outer panel constituting the outer surface of one section of the lid, through the interior of the lid, to a boss
10 provided on an opposing surface of an inner panel, to be welded at right angles with respect to the boss.

Discussion of the Related Art

[0003] Major home appliances such as washing machines, dryers, and dishwashers typically employ cabinets for housing internal components and establishing an exterior
15 surface formed of interconnecting panels, and user access is inherently initiated from the exterior of the home appliance. At the same time, a home appliance should be aesthetically appealing, including smooth exterior surfaces where possible. Accordingly, contoured exterior surfaces are widely employed, particularly where a manually operated outer panel is desired, such as in the case of the lid of a top-loading washing machine.

20 [0004] In a general top-loading washing machine, a drum for holding laundry is accessed through the top of the washing machine, where a user-operated lid is provided. To facilitate operation of the lid, the lid typically employs front and rear sections combined and hinged at a midpoint. In the opened state, the front and rear sections are drawn together at the midpoint hinge, in an upright position at a rear hinge supporting both sections, thus

minimizing the required vertical space for opening the lid and reducing the required reach of the user. Meanwhile, the sectioned lid is essentially made up of inner and outer panels joined together, with the outer panel constituting the contoured exterior of the washing machine. The joined panels should form a rigid piece to withstand the stress of manipulation by the user.

5 **[0005]** As shown in FIGS. 1 and 2, a general washing machine is comprised of a cabinet 2 housing a drum 4. The cabinet 2 forms the exterior of the washing machine, and a sectioned lid 14 comprising front and rear lids 15 and 16 constitutes the top surface of the cabinet. The rear edge of the rear lid 16 is hinge-coupled to the washing machine, and the rear edge of the front lid 15 is hinge-coupled to the front edge of the rear lid 16. A grip 15a
10 is centrally provided on the front lid 15.

[0006] Referring to FIG. 3, the rear lid 16 is comprised of an inner panel 22 having a plurality of reinforcement ribs 22a extending from its inner surface and protruding inward and an outer panel 20 having a plurality of fitting grooves 22a formed in its inner surface in correspondence to the reinforcement ribs. The cross-section of the outer panel 20 shows a
15 contoured (curved) surface forming the exterior of the washing machine, in which recesses are provided to enable lid operation, to allow access to controls, and impart an aesthetic appearance. During assembly, the reinforcement ribs 22a of the inner panel 22 are fitted to the fitting grooves 24 of the outer panel 20 and are welded (not shown) to the inner surface of the outer panel, thus joining the panels to form the rear lid 16. Notably, each of the
20 reinforcement ribs 22a has a flat distal end and extends to a predetermined height according to the contours of the outer panel 20.

[0007] The weld joining the inner and outer panels 22 and 20, however, is poor since the flat ends of the reinforcement ribs 22a must be joined with the curved surface of the outer panel 20. After extended use during which the sectioned lid 14 is repeatedly opened and

closed and sustains the vibration of the washing machine, the welded coupling between the inner and upper panels 22 and 20 is weakened and becomes unstable. Moreover, it is difficult to manufacture the inner panel 22 since the respective heights of the reinforcement ribs 22a must be carefully controlled and the respective welds lie in different planes.

5

SUMMARY OF THE INVENTION

[0008] Accordingly, the present invention is directed to a cabinet of a home appliance such as a washing machine that substantially obviates one or more of the problems due to limitations and disadvantages of the related art.

10 [0009] An object of the present invention, which has been devised to solve the foregoing problem, lies in providing a cabinet of a home appliance such as a washing machine, by which a coupling rigidity between inner and outer panels constituting a sectioned lid is enhanced.

[0010] It is another object of the present invention to provide a cabinet of a home
15 appliance such as a washing machine, which facilitates manufacturing.

[0011] Additional features and advantages of the invention will be set forth in the description which follows, and in part will be apparent to those having ordinary skill in the art upon examination of the following or may be learned from a practice of the invention. The objectives and other advantages of the invention will be realized and attained by the subject
20 matter particularly pointed out in the specification and claims hereof as well as in the appended drawings.

[0012] To achieve these objects and other advantages in accordance with the present invention, as embodied and broadly described herein, there is provided a cabinet for a home appliance. The cabinet comprises an outer panel having at least one reinforcement rib,

integrally formed on an inner surface of the outer panel, to protrude from the inner surface to a predetermined height; and an inner panel having at least one boss, formed on an inner surface of the inner panel in opposition to the at least one reinforcement rib, for joining the panels together, wherein the at least one boss has a flat surface for establishing a right angle
5 with respect to the at least one reinforcement rib.

[0013] It is to be understood that both the foregoing explanation and the following detailed description of the present invention are exemplary and illustrative and are intended to provide further explanation of the invention as claimed.

10 BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

15 [0015] FIG. 1 is a cross-sectional view of a general washing machine;

[0016] FIG. 2 is a plan view of the washing machine of FIG. 1, illustrating a sectioned lid;

[0017] FIG. 3 is a cross-sectional view cut along a line A-A in FIG. 2, illustrating a cabinet formation according to a related art; and

20 [0018] FIG. 4 is a cross-sectional view cut along a line A-A in FIG. 2, illustrating a cabinet formation according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0019] Reference will now be made in detail to the preferred embodiment of the

present invention, examples of which are illustrated in the accompanying drawings. Throughout the drawings, like elements are indicated using the same or similar reference designations where possible.

[0020] The home appliance cabinet according to the present invention is embodied as of a sectioned lid of a top-loading washing machine. The sectioned lid is a double-hinged lid and includes combined first and second sections corresponding to front and rear lids hinged at a midpoint of the combined lid, each section comprising inner and outer panels coupled to each other by a welding process. The construction and coupling of the rear lid, which has one end hinge-coupled to the washing machine and the other end hinge-coupled to the front lid, is shown in FIG. 4.

[0021] Referring to FIG. 4, an inner panel 52 and an outer panel 50 are joined together to form a rear lid 16, the outer panel being contoured according to the design needs of the home appliance. A plurality of reinforcement ribs 50a, integrally formed with the outer panel 50, protrude inward from an inner surface of the outer panel, to extend to a predetermined height, i.e., such that their distal ends all lie in a single plane. At least one boss 54 is provided on an inner surface of the inner panel 52 in opposition to the reinforcement ribs 50a. The boss 54 has a flat upper surface, establishing a right angle with respect to the protruding reinforcement ribs 50a, and a plurality of coupling grooves 54 are formed in the flat upper surface in correspondence to the distal ends of the reinforcement ribs, which are flat and respectively fitted to the coupling grooves to be joined with the boss by welding.

[0022] Accordingly, the welded coupling between the reinforcement ribs 50a and the boss 52a is secure, and remains strong even after extended use, due to the right angle created when the reinforcement ribs are inserted into the coupling grooves 54 of the boss. Moreover,

since the reinforcing ribs 50a all extend to a predetermined height, regardless of the contoured shape of the outer panel 50, cabinet manufacturing is facilitated since their height may be easily controlled and since their welds lie in one plane.

[0023] It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the spirit or scope of the invention. Thus, it is intended that the present invention cover such modifications and variations, provided they come within the scope of the appended claims and their equivalents.